AXPC Meeting with EPA OAR on OOOOb/c and Subpart W Reconsiderations

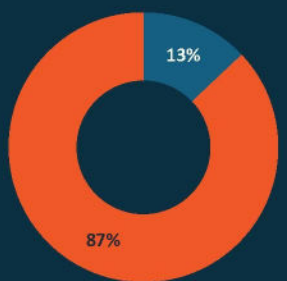
May 1, 2025

Who is AXPC?

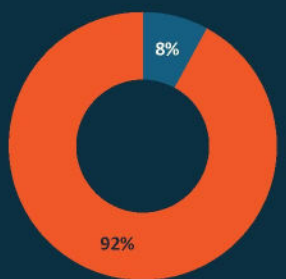
Leading Independent Upstream US Producers

Independents Produce the Majority of Oil and Natural Gas in the US

Domestic Oil Production



Domestic Gas Production



Global, Integrated

Independent Producer

AXPC Members (Independents) are Key American Producers

2,145 million barrels of oil

6% of the world's oil

19,306 billion standard cubic feet of natural gas

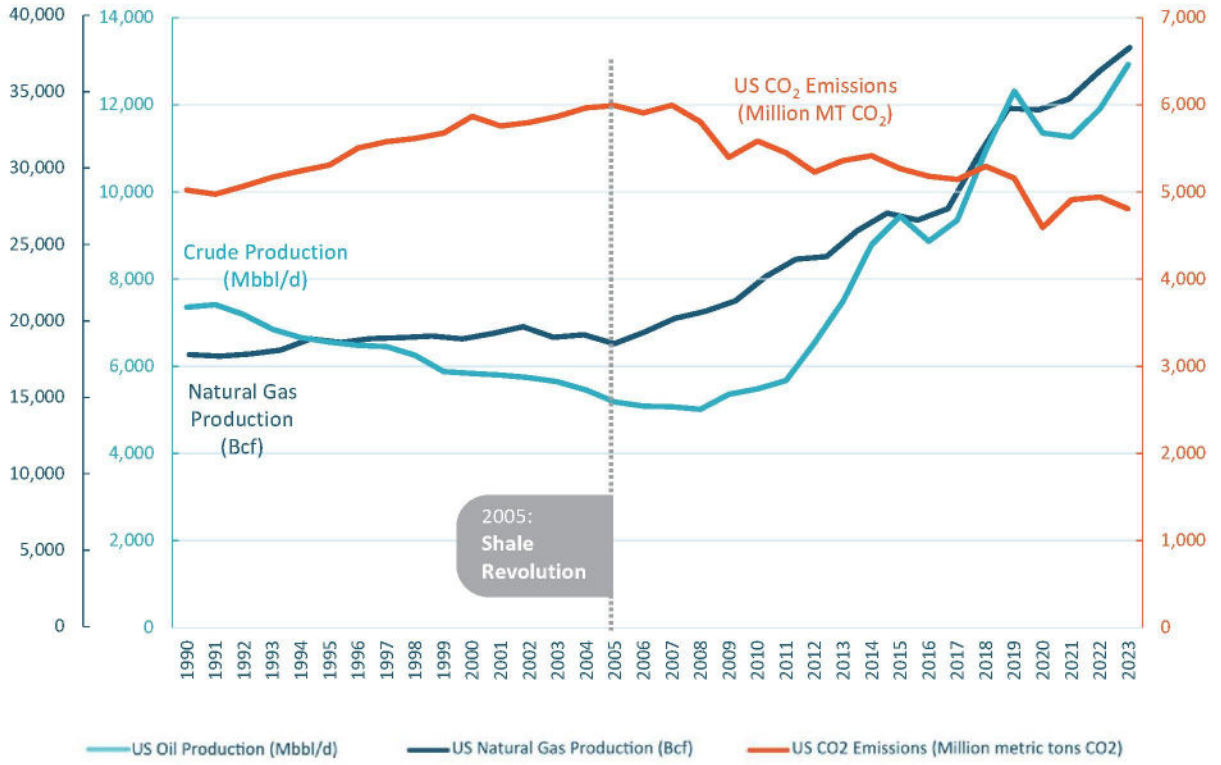
13% of the world's natural gas

Source: EPA Subpart W Data and Energy Information Administration

Powered by the US Shale Revolution

- 10% of US GDP growth between 2010 and 2015 due to US Shale Revolution
- Increased oil and natural gas production kept US prices lower and more stable
- US trade deficit in 2019 was $305 billion lower than it would have been without domestic production
- US energy-related CO2 emissions reduced by shifting to more natural gas generated electricity at levels not predicted prior to innovations of the Shale Revolution

Lower Energy Costs, Cleaner Environment, and US Energy Security



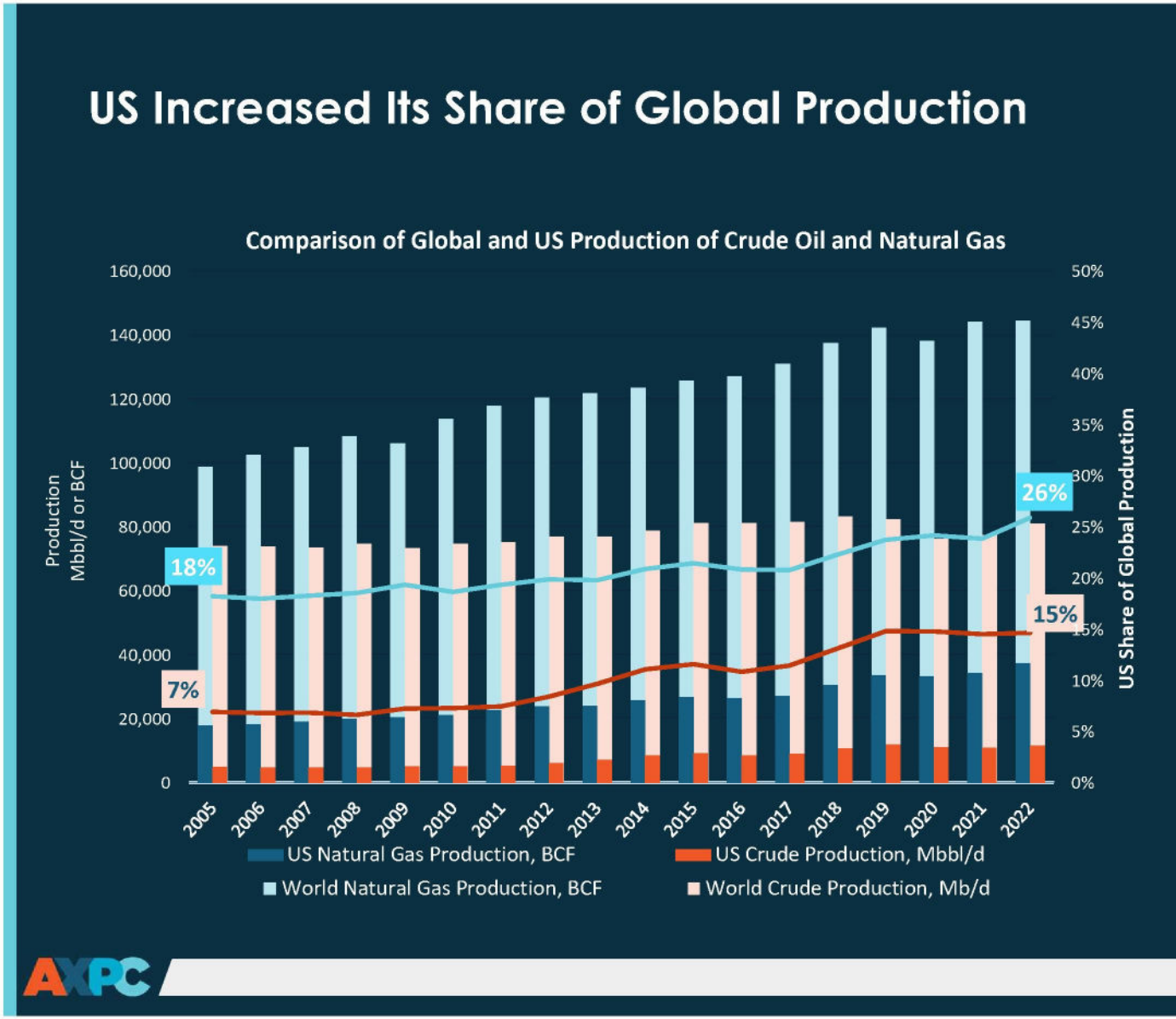
Source: Energy Information Administration, Federal Reserve Bank of Dallas

AXPC

Powered by the US Shale Revolution

- The **US share** of global natural gas production has **increased from 18% to 26% since 2005**
- The **US has increased** its share of global crude production **from 7% to 15% since 2005**

Source: Energy Information Agency



NSPS OOOOb / EG OOOOc
Reconsideration Requests

AXPC AMERICAN EXPLORATION & PRODUCTION COUNCIL

Mechanisms for Solutions and Timing

Interim Final Rule: Extend Compliance Deadlines and OOOOc Plan Submittal Deadline

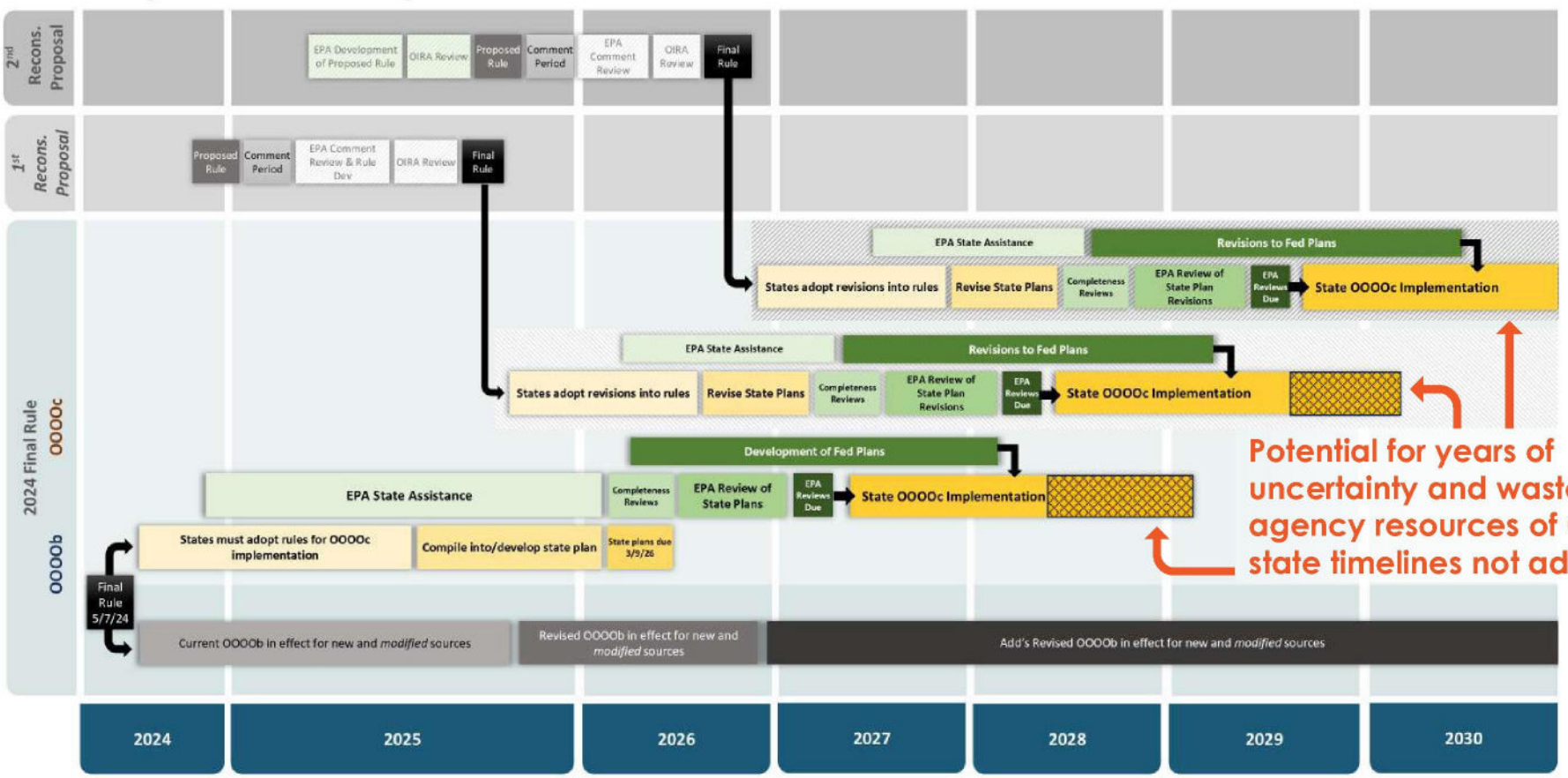
Finalize Current Recon Rule Amendments (NHV and Temporary Associated Gas Flaring)

Notice-and-Comment Rulemaking: Other Priority Issues

Guidance

Additional Reconsideration Rulemaking

Challenge of OOOOc Timelines



Regulatory Revisions

AMERICAN EXPLORATION & PRODUCTION COUNCIL

*Slides reference AXPC/API petitions throughout
"L1" or "L2" indicate 4/5/24 and 5/6/24 petitions, respectively
"P[x]" indicates the page number in referenced petition

Regulatory Revisions

Temporary Associated Gas Flaring

- **Appreciate reconsideration proposal**
- **Commented that final rule should allow temporary flaring for up to 72 hours:**
  - During a malfunction or incident that endangers the safety of operator personnel or the public
  - During repair, maintenance including blow downs, a production test, or commissioning
  - EPA-HQ-OAR-2024-0358-0088, 16-18
- **Industry data supports 72 hours, particularly for Bakken**

Regulatory Revisions

Temporary Associated Gas Flaring

- **BSER requires that the infeasibility demonstration include considerations of economic infeasibility and commercial availability, in addition to technical infeasibility**
- **Economically infeasible if:**
  - The cost of compliance with the performance standard would result in the affected/designated facility having a cost-effectiveness greater than **$5,540 per ton of VOCs** or **$1,970 per ton of methane** or the **well is no longer able to economically operate**; or
  - The cost of compliance with the performance standard would be so great that it **would result in the affected/designated facility no longer being able to economically operate**
- ***See* AXPC Comments on Supplement Proposal, EPA-HQ-OAR-2021-0317, 3-5, 24-26**

Control Devices: NHV Monitoring/Demonstration

- **Appreciate current reconsideration proposal, including:**
  - Removal of NHV_{cz} and NHV_{dil} monitoring under OOOOc
  - Allowing for breaks in 14-day sampling period
  - Reduced one-hour sampling period for low or intermittent flow
- **Submitted comments mirroring earlier discussions:**
  - Vent gas NHV monitoring should be required only where inert gases are added upstream of the control device
  - Where demonstration required, allow representative sampling
  - EPA-HQ-OAR-2024-0358-0088, 16-18

Control Devices: ECD Performance Testing

- **Technical challenges with method in final rule (L1P5, L2P12)**
  - Low and/or intermittent flow - EPA Method 2, 2A, 2C, or 2D not technically feasible due to highly variable and intermittent flow from sources to control device
  - Lack of sample ports on existing ECDs requires either a site shutdown and "hot tap" to install ports or the use of a Shepherd's hook or similar device to conduct testing
- **Request Approval of Alternative Test Methods (L2P12, L2P16)**
  - OTM-52 or other similar method
    - Request inclusion as method in regulation or approved as alternative method
  - For ECDs with intermittent inlet flow:
    - Reduced runtime and/or number of runs

Control Devices: Inlet Flow Monitoring

- **Flow monitoring requirements are either technically infeasible or economically unreasonable for low-pressure control devices (L2P8)**
  - Most flow meters are unable to accurately measure the flow of low-volume, low-pressure, intermittent, and turbulent streams
  - Parametric monitoring does not provide a more accurate or cost-effective alternative to flow meters

Regulatory Revisions

Control Devices: Pilot/Flame Monitoring

- **Continuous pilot flame requirements (L2P13)**
  - Revise the continuous burning pilot or combustion flame requirement to
    - Allow use of automatic ignition systems
    - Exclude times when site is not operating (safety issue; pilot gas not available)
    - Reduces environmental disbenefit of burning supplemental fuel to maintain constant pilot flame when unnecessary
  - Eliminate requirement to alarm to nearest control room

Regulatory Revisions

Control Devices: Visible Emissions Monitoring

- **Equalize requirements between video camera monitoring systems and Method 22 (L2P14)**
  - Prescriptive camera location requirements are unnecessary
  - Video feed should be observed monthly
  - Records of video surveillance output should be limited to operator observations
  - Artificial intelligence or machine learning should be allowed

Control Devices: Temporary Control Devices

- **Use of temporary control devices should be allowed under OOOOb/c and exempted from the monitoring and performance testing requirements.(L2P16)**
  - Due to the short duration of their use, compliance with the monitoring and performance testing requirements would be impractical, if not impossible, for temporary control devices.

Regulatory Revisions

No Identifiable Emissions: Covers, CVS and SCPCs

- **Meeting the "no identifiable emissions" standard is infeasible on a continuous basis**
- **EPA should revise to work practice standard**
  - Equipment is no different than fugitive emissions components, which are subject to a work practice standard

(L1P4)

Regulatory Revisions

Storage Tanks

- **The storage vessel modification definition is overbroad (L1P6)**
  - 60.5365b(e)(3)(ii)(C): “receives additional crude oil, condensate, intermediate hydrocarbons, or produced water throughput from actions, including but not limited to, the addition of operations or a production well, or changes to operations or a production well (including hydraulic fracturing or refracturing of the well)”
  - 60.5365b(e)(3)(ii)(D): "receives additional fluids which cumulatively exceed the throughput used in the most recent (i.e., prior to an action in paragraphs (e)(3)(ii)(A), (B) or (D) of this section) determination of the potential for VOC or methane emissions"
  - Each incorrectly presumes a physical change or change in method of operation of the *storage vessel*
  - The baseline throughput for comparing receipt of additional throughput is ambiguous

Storage Tanks

- **Legally and Practicably Enforceable Limits (L2P1)**
  - Criteria are impractical and contrary to the fundamental principle of cooperative federalism
  - Many tanks will have actual emissions below threshold, but will be affected/designated facilities
  - Remove following unnecessary elements:
    - Reporting Requirements
    - Control Device Parametric Monitoring and Performance Testing

Storage Tanks

- **Correct OOOOc regulatory text requiring that storage vessel vapor space is manifolded (L2P35)**
  - OOOOc still retains language in § 60.5396c(b)(1)(ii) requiring the storage vessel vapor space to be manifolded together
  - This language is not in OOOOb
  - EPA's response to comment indicated it was its intent to remove this requirement

Process Controllers

- **Revise standard to allow routing of process controller emissions to a control device**
- **Zero-emitting standard is challenging in some areas and may be an environmental disbenefit**
  - Electrification challenges
  - Installation of generators to provide power will result in added NO_x ,VOC, methane, and HAP combustion emissions

Regulatory Revisions

Super-Emitter Program

- **Significant strain on resources for both EPA and companies**
- **Subject to litigation**
  - 100 kg/hr *rate* threshold will encompass normal, necessary venting from standard operations and maintenance; the threshold is arbitrary
  - Third-party monitoring should not create legal obligation or jeopardy (L2P27)
- **No accuracy requirement for technology approval; only that it must have sensitivity to identify sources above super-emitter threshold**
- **Seemingly no transparency in EPA review and approval**
- **Unnecessarily prescriptive and burdensome investigation and reporting requirements**
- **Circumvents state programs and enforcement authorities**
- **Novel program does not have clear, statutory authority and should be removed from OOOO regulatory requirements**

Regulatory Revisions

Super-Emitter Program

- **If retained, EPA should transform the SEP into a compliance assistance program**
  - Remove SEP from all NSPS OOOO rules
  - Model after the Natural Gas STAR program

- **If retained in any form, the following revisions are necessary:**
  - Third-party monitoring must not create legal obligation or jeopardy (L2P27)
  - Strengthen requirements for third parties to discourage repeated false positive notifications (L2P29)
  - Add clearly defined accuracy requirement for technology approval and more transparency in the approval process
  - Make applicability language consistent across NSPS OOOO,a,b,c (L2P29)
  - Clarify that EPA will provide super-emitter notifications quickly (L2P28)
  - Clarify that third party notifications must include clearly articulated descriptions of how methane plumes were assigned to specific starting coordinates, and this information should be provided to operators (L2P30)

Regulatory Revisions

Well Liquids Unloading

- **Remove requirement to report non-emitting gas well liquids unloading events (L2P33)**
  - Any regulation of a non-emitting source would not comport with the definition of standard of performance or the requirement to only apply the best system of emission reduction
  - EPA "agrees that requiring an owner or operator to comply with some of the proposed recordkeeping and reporting requirements in instances where an unloading event does not result in venting to the atmosphere would impose a burden without any added benefit environmentally...." *See* 89 Fed. Reg. at 16956/2.

Fugitives Monitoring

- **Modifications (L2P22)**
  - Modification criteria finalized for fugitive emissions is inappropriate for central production facilities in the gathering and boosting segment
    - Operator of the centralized production facility may not be the same as the operator of the wells that flow to the central production facility. Therefore, the central production facility operator may not know when action is occurring at an offsite well that would trigger modification at the centralized production facility making the requirements finalized in § 60.5365b(i)(2) untenable
- **Remove well closure plans and financial assurance requirements (L2P23)**
  - EPA lacks authority to require well closure plans and financial assurance information

Pumps

- **EPA did not justify requiring zero emissions control standards for natural gas driven pumps already in compliance with NSPS OOOOa (L2P32)**
  - EPA should revise the final rule for pumps already complying with NSPS OOOOa requirement to achieve 95.0% reduction in VOCs:
    - For OOOOc, allow these pumps to continue complying with OOOOa
    - For OOOOb, exclude pumps complying with OOOOa from the OOOOb pumps affected facility definition

Regulatory Revisions

Reporting

- **Amend 60.5420b(b) to reference the previous annual report rather than the "initial" report (L2P35)**
  - To facilitate streamlining of annual reporting, EPA should amend § 60.5420b(b) to reference the previous annual report instead of the "initial" annual report

Regulatory Revisions

Alternative Technology for LDAR

- **For periodic screening with alternative technology, retention of the 1 kg/hr detection threshold for quarterly OGI equivalency is not reflective of the capabilities of alternative detection technology, or the real-world efficacy of OGI, and is not supported by a realistic emissions profile in FEAST modeling (L2P18)**
  - EPA's analysis did not adequately consider additional information provided by industry and therefore kept the minimum detection threshold at 1 kg/hr for quarterly periodic screening surveys
  - EPA's analysis does not accurately reflect alternative technology's capabilities to find the bigger leaks faster and more cost-effectively than OGI
  - Recommend that EPA reconsider the detection threshold and, in doing so, update FEAST modeling and the periodic screening matrices in a reconsideration rule and, at a minimum, fully explain the rationale for not considering additional information
- **Recommend that EPA clarify its intent that operators can freely switch between traditional (§§ 60.5397b and 60.5416b) and alternative technology monitoring (§ 60.5398b) methods**

Alternative Technology for LDAR

- **For continuous monitoring with alternative technology, the specified detection thresholds and action-levels are too low**
  - Recommend that EPA reconsider and increase the detection thresholds and action-levels

Guidance

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Guidance

Temporary Equipment

- **Process Controllers (L1P10)**
  - Exclude any natural gas-driven process controllers on equipment that is skid mounted or permanently attached to something that is mobile (such as trucks, railcars, barges, or ships) and intended to be located at a site for less than 180 consecutive days
    - Clarify these are not "stationary sources"
  - Process controllers or pumps associated with drilling and completion equipment should be excluded from the zero-emitting process controller requirements
    - Clarify that the requirements for process controllers are not applicable until after the startup of production like other provisions within the proposed standards

Guidance

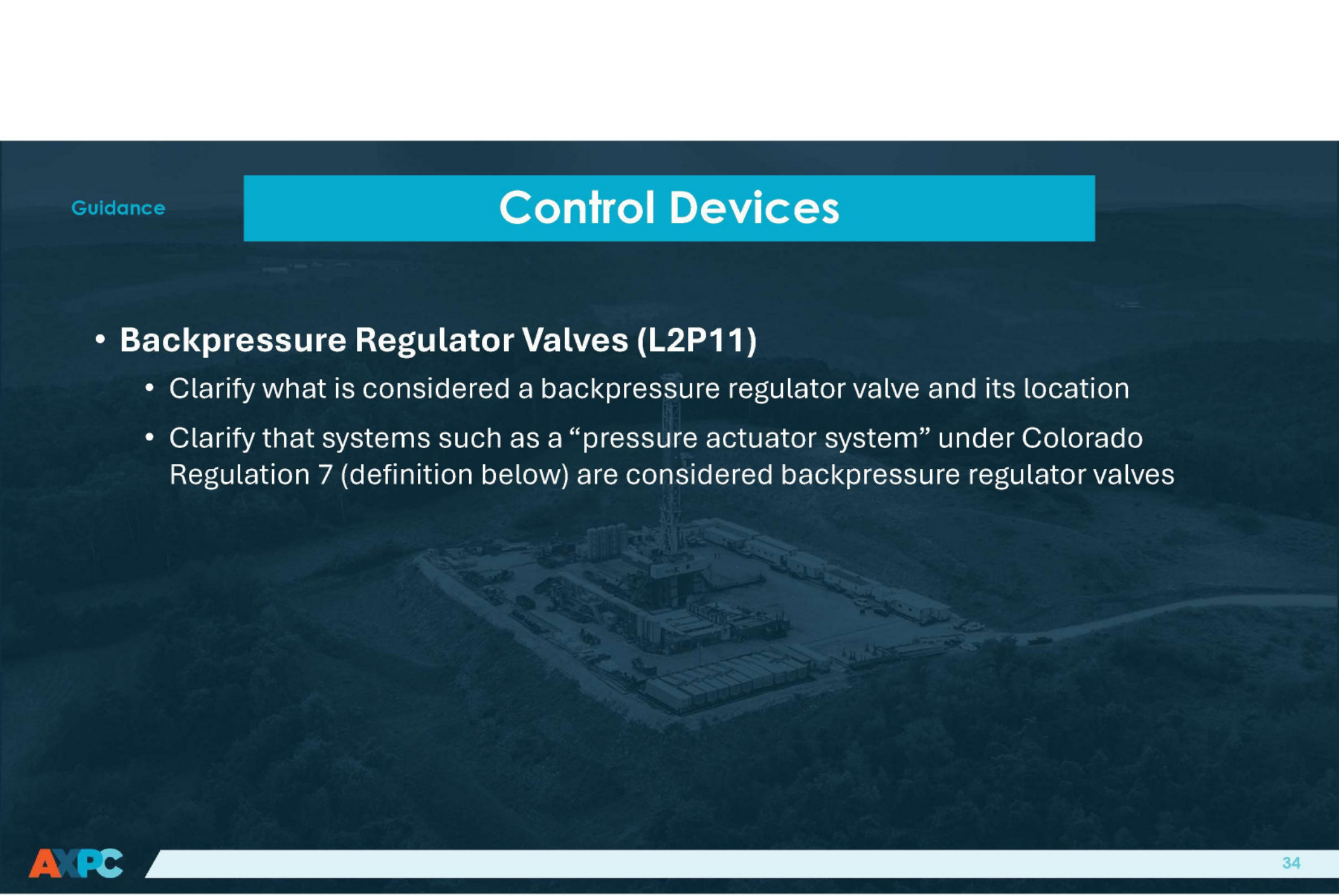
Temporary Equipment

- **Well Liquids Unloading (L1P9)**
  - Given the short-term nature of liquids unloading events, the ongoing compliance assurance related to both a closed vent system and control device would be inappropriate since many of the activities would be forced to occur when liquids unloading activities are not even occurring
  - Use of a temporary flare or portable control device should be authorized to handle emissions from liquids unloading.
    - Due to the temporary nature of these activities, the control device compliance requirements should mimic the requirements of control devices utilized for well completions affected facilities, i.e., operated with a reliable continuous pilot flame during the liquid unloading activity

Guidance

Control Devices

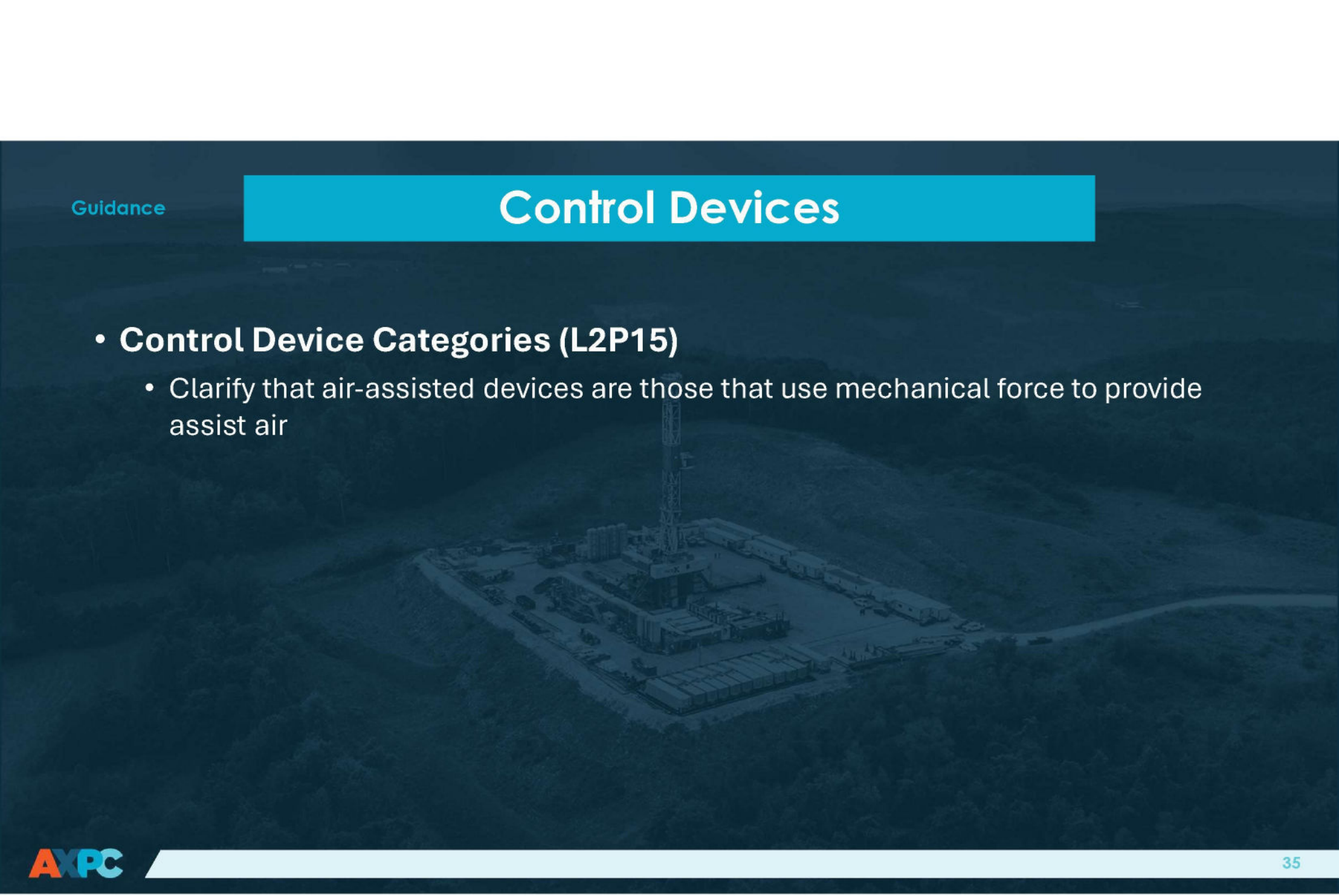
- **Backpressure Regulator Valves (L2P11)**
  - Clarify what is considered a backpressure regulator valve and its location
  - Clarify that systems such as a “pressure actuator system” under Colorado Regulation 7 (definition below) are considered backpressure regulator valves



Guidance

Control Devices

- **Control Device Categories (L2P15)**
  - Clarify that air-assisted devices are those that use mechanical force to provide assist air



Guidance

Storage Tanks

- **Clarify applicability and timing of NSPS OOOOb storage vessel requirements to those storage vessels that commenced construction, reconstruction, or modification between December 6, 2022, and May 7, 2024**
  - Clarify that:
    - June 6, 2024, is the deadline for operators to complete the potential for emissions determination for these tanks, and
    - Operators may use any consecutive 30-day period of production occurring after triggering potential applicability and before June 6, 2024, to determine the maximum average daily throughput (L2P3)
  - Clarify the requirements to maintain emissions below certain thresholds and to reduce emissions by 95.0% for 12 consecutive months do not apply (L2P5)
    - If EPA interprets the applicability provisions to require operators to use the 30-day period immediately following construction, reconstruction, or modification, the following clarification is necessary:
      - If a storage vessel's emissions are below the thresholds in § 60.5395b(a)(3) (4 and 14 tpy uncontrolled actual VOC and methane, respectively) as of July 6, 2024, the storage vessel does not need to comply with the emissions reduction requirements for 12 consecutive months before it can comply with § 60.5395b(a)(3) in lieu of compliance with the § 60.5395b(a)(2) emissions reduction requirement

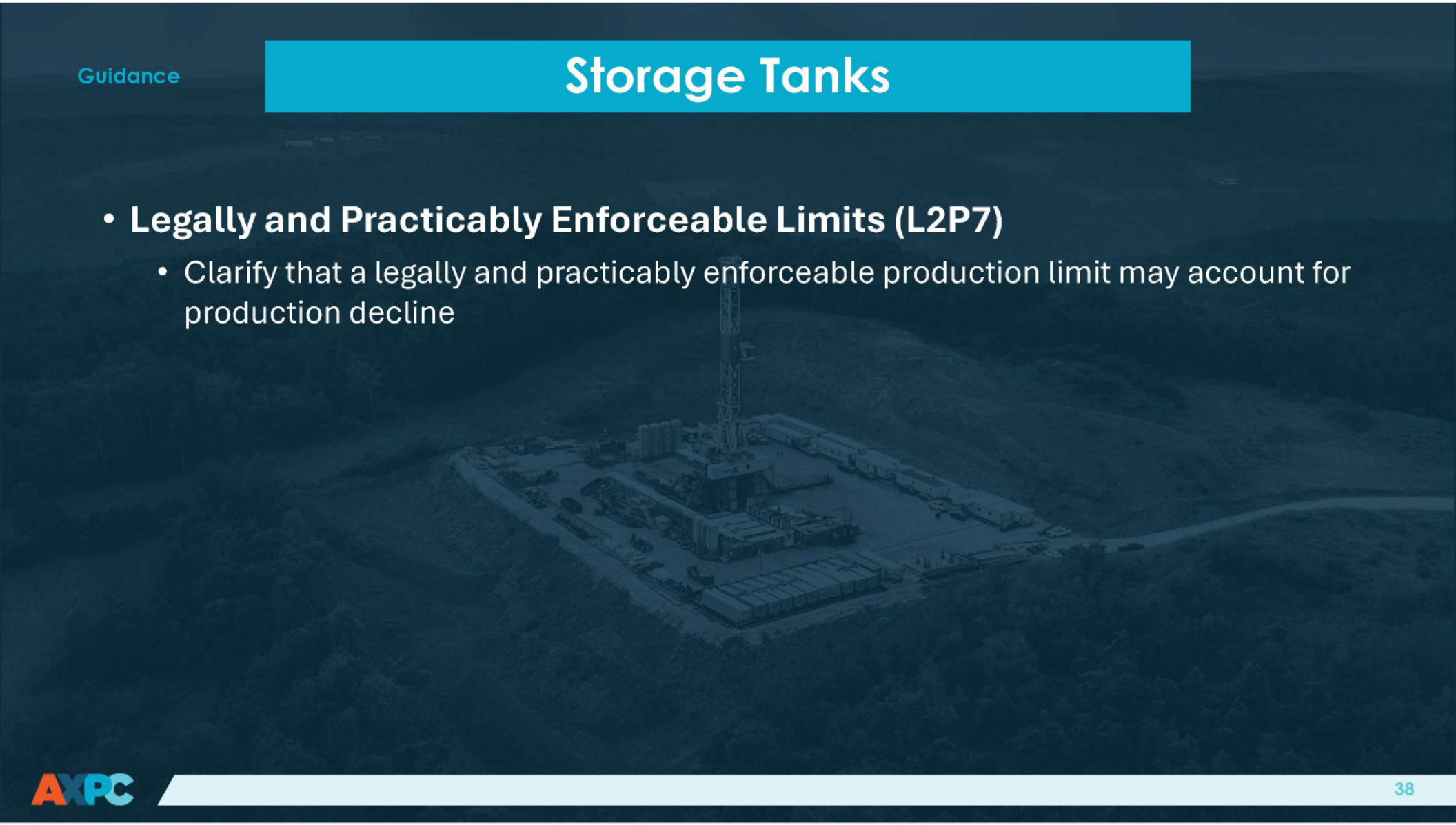
Storage Tanks

- **Clarify that a tank battery is limited to storage vessels manifolded for liquid transfer at a single surface site (L2P7)**
  - Storage vessels do not need to be adjacent to be considered part of the same tank battery, but the storage vessels do need to be located at the same surface site
- **Allowance for limited VRU downtime (L2P6)**
  - Clarify that a VRU may be used to meet the 95.0% control requirement for storage vessels, provided that it is designed and operated with a capture efficiency and annual uptime equivalent to a 95.0% reduction in vapors from the storage vessel

Guidance

Storage Tanks

- **Legally and Practicably Enforceable Limits (L2P7)**
  - Clarify that a legally and practicably enforceable production limit may account for production decline



Guidance

Leak Monitoring

- Clarify that operators can freely switch between traditional and alternative monitoring standards (L2P19)
- Clarify that operators may use AVO, OGI, and/or Method 21 as part of flexible, fit-for-purpose monitoring plans that use multiple detection technologies during each periodic survey (L2P20)
- Clarify the definition of fugitive emissions component to exclude equipment that vents as part of normal operating process (L2P20)
- Clarify that the 90-day completeness review for alternative technology applications is nested within the 270-day approval period (L2P19)
- Clarify alternative technologies can monitor self-contained process controllers (L2P35)

Subpart W Reconsideration

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Overarching Policy Priority: Implementation Deadline

- **Problem:** The final rule has many issues that EPA intends to address through reconsideration, including provisions that require operators to incur significant costs and hardship, *e.g.,* installation of a flow meter to measure hydrocarbon liquid throughput.

- **Fix:** EPA should allow operators to use the 2024 amended requirements on a voluntary basis until the 2026 reporting year to allow time necessary for reconsideration rulemaking. EPA can do this through an interim final rule.

Overarching Policy Priority: Alternative Technology

- **Problem:** The final rule does not provide an onramp for alternative technologies to be used for quantifying emissions in GHG inventories. Instead, incorporating new technology would require a lengthy notice-and-comment rulemaking process, discouraging innovation and adoption.
- **Fix:** The EPA should establish a clear and efficient approval process that allows for the timely adoption of alternative emissions quantification technologies without requiring a full rulemaking procedure.

Overall Policy Priority: Representative Sampling

- **Problem:** The rule requires operators to measure 100% of the population of certain equipment types (pneumatics, tanks, flares, and combustion sources), rather than allowing representative sampling. However, the EPA itself relies on academic studies that use sampling methodologies to establish default emission factors. This requirement is misaligned with OGMP 2.0 and other international standards.
- **Fix:** The EPA should allow operators to develop emission factors based on statistically significant, representative sampling, aligning with the methodologies used in the studies informing the rule and international best practices.

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Source Specific Priority: Flares

- **Problem:** The tiers for destruction efficiency do not properly account for relevant empirical data or the operational differences between upstream and refinery flares. The top tier relies on compliance with petroleum refinery requirements, which are technically inappropriate and economically infeasible for upstream operations. Additionally, the destruction and combustion efficiency tiers do not fully reflect all available data submitted during the comment period.
- **Fix:** EPA should revise the flare efficiency tiers to ensure they are based on appropriate and relevant data for upstream and midstream operations. Specifically:
  - Remove Tier 1 references to NESHAP CC requirements, as refinery standards are operationally infeasible and economically unreasonable for upstream/midstream flares.
  - Revise Tier 2 destruction efficiency to 98% based on submitted data, applying it to flares that comply with OOOOb/c promoting better cross-regulation alignment
  - Revise Tier 3 destruction efficiency to 95% based on the complete dataset from the Plant et al. study, rather than the limited subset previously used.
  - Allow operators to determine a destruction or combustion efficiency above Tier 1 (e.g., greater than 98%) through performance testing, using either standard or alternative test methods. (specific to enclosed combustion devices)

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Source Specific Priority: Other Large Release Events

- **Problem:** The finalized provisions for OLRE are likely to increase reporting errors and make emissions reports less accurate. The broad scope of the OLRE category could lead to double counting or inconsistencies by requiring emissions reporting that overlaps with existing, well-defined methodologies under Subpart W. The OLRE threshold is based on instantaneous emission rates that can capture de minimis emissions events, characterizing them as "large release events." The rule lacks clarity on the approved technologies for identifying OLRE events and does not provide reasonable flexibility for determining the duration of such events. OLRE reporting disincentivizes the use of alternative monitoring technology, *e.g.,* continuous emissions monitoring.

- **Fix:** EPA should refine the OLRE provisions to enhance accuracy and consistency in emissions reporting:
  - Limit the OLRE category to ONLY emissions not otherwise quantified under existing Subpart W methodologies, ensuring that named emission sources follow only the empirically based calculation methodologies and engineering estimates.
  - Allow Audio, Visual, and Olfactory (AVO) inspections as a valid method to determine the start and end points of an emission event, providing a practical and field-tested approach.
  - The OLRE reporting threshold should be mass-based per event rather than an instantaneous rate.

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Source Specific Priority: Tanks - Flowmeters

- **Problem:** The Final Rule mandates the use of flow meters to measure hydrocarbon liquid throughputs, despite upstream industry operators not typically using flow meters for this purpose. Instead, the industry primarily relies on tank gauging to determine liquid throughputs, which ensures both accurate product measurement for buyers and appropriate payment for sellers. The EPA's assumption that flow meters are already widely in place is incorrect and led to the agency's failure to account for the exorbitant costs associated with compliance.

- **Fix:** The EPA should allow the use of currently existing industry standard practices, including tank gauging, as an acceptable measurement method as it is allowed in the final rule in the midstream segment of the industry.

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Source Specific Priority: Leaker Factors

- **Problem:** The "k" factor used to estimate emissions from undetected equipment leaks is based on an outdated and irrelevant study, leading to inaccurate emissions estimates.

- **Fix:** The "k" factor should be removed entirely from the rule, or the EPA should use a more recent and relevant dataset to develop an updated factor.

Source Specific Priority: Gathering and Boosting

- **Problem:** The emissions factor for gathering and boosting line leaks is based on a study of distribution lines, not gathering lines. Additionally, it is skewed by large leaks that advanced monitoring methods (*e.g.*, flyovers) would readily detect.

- **Fix:** The EPA should re-evaluate the emissions factor using a study specifically focused on gathering lines and allow operators to incorporate the impact of advanced monitoring technologies.

AXPC